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KENNY CHANG

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Examiner: PIZIALI, ANDREW T.

Title: ONE PIECE SHIM

**Mail Stop Appeal Brief - Patents  
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**BRIEF ON APPEAL**

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## Table of Contents

	<u>Page</u>
INTRODUCTION.....	1
I. Real Party in Interest - 37 C.F.R. §41.37(c)(1)(i) .....	1
II. Statement of Related Appeals and Interferences - 37 C.F.R. §41.37(c)(1)(ii) .....	1
III. Status of Claims - 37 C.F.R. §41.37(c)(1)(iii) .....	1
IV. Status of Amendments - 37 C.F.R. §41.37(c)(1)(iv) .....	1
V. SUMMARY OF CLAIMED SUBJECT MATTER - 37 C.F.R. §41.37(c)(1)(v) .....	1
A. Features of the Invention .....	1
B. The Independent Claims on Appeal .....	4
1. Claim 1 .....	4
2. Claim 23 .....	4
VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL – 37 C.F.R. § 41.37(c)(1)(vi) .....	4
VII. ARGUMENT - 37 C.F.R. §41.37(c)(1)(vii) .....	5
A. The law regarding 35 U.S.C. §112, second paragraph. ....	5
B. Rejection under 35 U.S.C. §112, second paragraph. ....	6
C. The Law Regarding Factual Inquiries to Determine Anticipation Under 35 U.S.C. § 102(b). 8	
D. Rejection Under 35 U.S.C. § 102(b) of Claims 1-10 and 23-32 based on U.S. Pat. No. 3,958,840 to Hickox .....	8
1. The Cited Reference .....	8
a) Hickox .....	8
2. Claims 1-10 and 23-32 are not anticipated by Hickox .....	8
a) Claim 1 .....	8
b) Claim 23 .....	11
c) Claims 2-4 and 24-26 .....	12
d) Claims 5 and 27 .....	12
e) Claims 6 and 28 .....	13
f) Claims 7 and 29 .....	13
g) Claims 8 and 30 .....	13
h) Claims 9 and 31 .....	14
i) Claims 10 and 32 .....	15
E. The Law Regarding Factual Inquiries to Determine Obviousness/Nonobviousness Under 35 U.S.C. § 103(a) .....	16
F. Rejection Under 35 U.S.C. § 103(a) of Claims 4, 5, 7, 26, 27 and 29 based on Hickox as applied to claims 1-10 and 23-32 above, and further in view of U.S. Patent No. 4,304,178 to Häberle .....	17
1. The Cited References .....	17
a) Hickox .....	17
b) Häberle .....	17
2. Claims 4, 5, 7, 26, 27 and 29 are not obvious in view of the combination of Hickox and Häberle .....	18
a) Claims 4 and 26 .....	18
b) Claims 5 and 27 .....	18
c) Claims 7 and 29 .....	19
G. Rejection Under 35 U.S.C. § 103(a) of Claims 1-10 and 23-32 based on Hickox in view of U.S. Pat. No. 3,429,622 to Lee .....	19
1. The Cited Reference .....	19
a) Hickox .....	19
b) Lee .....	19
2. Claims 1-10 and 23-32 are not obvious in view of the combination of Hickox and Lee .....	20
a) Claims 1 and 23 .....	20
b) Claims 2-4 and 24-26 .....	20
c) Claims 5 and 27 .....	20
d) Claims 6 and 28 .....	21

e) Claims 7 and 29.....	21
f) Claims 8 and 30.....	22
g) Claims 9 and 31.....	22
h) Claims 10 and 32.....	23
H. Rejection Under 35 U.S.C. § 103(a) of Claims 4, 5, 7, 26, 27 and 29 based on Hickox in view of Lee as applied to claims 1-10 and 23-32 above, and further in view of Häberle.....	24
1. The Cited References.....	24
a) Hickox.....	24
b) Lee.....	24
c) Häberle.....	24
2. Claims 4, 5, 7, 26, 27 and 29 are not obvious in view of the combination of Hickox, Lee and Häberle.....	25
a) Claims 4 and 26.....	25
b) Claims 5 and 27.....	25
c) Claims 7 and 29.....	26
CONCLUSION.....	27
VIII. CLAIMS APPENDIX - 37 C.F.R. §41.37(c)(1)(viii).....	28
IX. EVIDENCE APPENDIX – 37 C.F.R. § 41.37(c)(1)(ix).....	31
X. RELATED PROCEEDINGS APPENDIX – 37 C.F.R. § 41.37(c)(1)(x).....	32

## **INTRODUCTION**

This Appeal is from a final Office Action mailed July 1, 2009, finally rejecting claims 1-10 and 23-32 of the above-identified patent application. This brief is in furtherance of the Notice of Appeal filed on January 4, 2010.

### **I. Real Party in Interest - 37 C.F.R. §41.37(c)(1)(i)**

The real party in interest for this Appeal and the present patent application is Messier-Bugatti, by way of an Assignment recorded on May 31, 2006, in the U.S. Patent and Trademark Office at Reel 017717, Frame 0979.

### **II. Statement of Related Appeals and Interferences - 37 C.F.R. §41.37(c)(1)(ii)**

There are presently no appeals or interferences known to Appellant, Appellant's representatives, or the Assignee, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

### **III. Status of Claims - 37 C.F.R. §41.37(c)(1)(iii)**

Claims 1-10 and 23-32 are pending in the application. Claims 11-22 have been cancelled without prejudice or disclaimer to the subject matter therein. Claims 1-10 and 23-32 are rejected. The rejection of claims 1-10 and 23-32 is appealed herein. Claims 1 and 23 are independent. Claims 2-10 depend from claim 1. Claims 24-32 depend from claim 23.

### **IV. Status of Amendments - 37 C.F.R. §41.37(c)(1)(iv)**

A Preliminary Amendment was filed on September 2, 2005 and February 23, 2006. An Amendment was filed on April 29, 2009. A Notice of Appeal was filed on January 4, 2010.

### **V. SUMMARY OF CLAIMED SUBJECT MATTER - 37 C.F.R. §41.37(c)(1)(v)**

#### **A. Features of the Invention**

A shim member according to the present invention has a generally flattened annular form with opposing first and second surfaces. At least one of the surfaces is shaped to at least partially define radially extending gas flow paths for communicating the interior space of the shim member with an exterior. In one embodiment, the shim member is similar in radial

dimensions to the annular preforms adjacent thereto. That is, the shim member can be provided with a similar interior diameter and a similar exterior diameter to the annular preforms.

In one embodiment, the shim member can be made from a metallic material having openings formed therethrough, including, without limitation, a metal mesh material. The metallic material may be bare (i.e., without a coating, including without a debonding coating), which makes manufacture and refurbishment correspondingly simpler and less expensive.

In general, a shim member according to an embodiment of the present invention has certain fundamentally useful characteristics. A one-piece or otherwise unitary construction greatly facilitates the loading of a process chamber with stacked annular preforms, in comparison to the use of several individual spacer members between every annular preform in the stack. Conventional arrangement requires manual placement of each conventional spacer member. Moreover, because the conventional spacer member is usually made from a highly fragile material such as alumina, each spacer member must be handled with great care during an already lengthy and tedious manual process to try to avoid breakage. With the use of a one-piece shim member, a single action of positioning the shim member replaces the several placement actions of positioning individual spacer members.

In addition, the structure of the one-piece shim member better supports the weight of the one or more annular preforms stacked thereon over a greater area, in comparison to the conventional use of individual spacer members. In particular, in one embodiment, the radial width of the annular one-piece shim member can be about equal to or slightly narrower than that of the annular preforms. As a result, each annular preform is less deformed after being removed from the process chamber. This means that less remedial machining is required after the densification process to obtain a usefully undeformed surface.

In one embodiment, the one-piece shim member provides radially extending channels or other features on one or both surfaces thereof that, in net effect, at least partly define gas flow paths communicating the radially interior side of the one-piece shim member with the radially exterior side thereof. It will be appreciated that the collective cross-sectional area of the gas flow paths presented can be affected, for example, by either adjusting the size of each channel or the like, or by providing more of the channels or the like. A deciding factor in this regard is maintaining a desirable level of support for the overlying annular preform(s).

In one embodiment, the one-piece shim member can be made from a material that can withstand temperatures of up to about 1000 deg. C., and preferably (for safety purposes) up to about 1200 deg. C. to 1400 deg. C. The selected material is preferably minimally reactive with the preform at the operational temperatures mentioned. Examples of materials appropriate for the one-piece shim member as contemplated include metallic materials such as, without limitation, stainless steel, Inconel alloy, titanium, molybdenum, tantalum, and tungsten.

FIG. 3a is a plan view of another example of an annular shim member 600 according to the present invention, and FIG. 3b is a corresponding elevational view including a magnified partial portion thereof. Annular shim member 600 is generally made from a perforated metallic material having an open area of about 20% to about 80%. In a particular example thereof, annular shim member 600 is made from a metallic mesh material. Annular shim member 600 may be formed by cutting an appropriately sized annular form from a sheet of stock material. Any appropriate industrial cutting method can be used, including, without limitation, computer-controlled laser cutting.

FIGS. 3a and 3b illustrate an example of the use of a mesh material to make annular shim member 600. As can be clearly seen in the magnified portion of FIG. 3b, the mesh material be a woven mesh manufactured according to known methods, especially including crimped weave methods. A crimped weave mesh refers to preshaping (i.e., crimping) the wires in at least one direction in the mesh. For example FIG. 3b illustrates the crimped wire 602 relative to the wires 604. Thus, the undulations in wire 602 present, in effect, open spaces adjacent to transverse wires 604. These open spaces (which are interconnected over the area of annular shim member 600) collectively at least partly define a plurality of radially extending gas flow paths for communicating a radially interior side of the member 600 with a radially exterior side of the member 600, the annular shim member 600 being substantially planar.

In one embodiment, the thickness of the annular shim member 600 is about twice the diameter of a wire 602 or 604. In one example, the overall thickness of annular shim member 600 is between about 1 mm and about 6 mm. In one embodiment, annular shim member 600 has significantly different thermal expansion characteristics than the annular preforms so adhesions therebetween are negligible, and the debonding coating of the carbon annular shim can be omitted. Furthermore, the metallic mesh can be easily and simply reconditioned by, for example, sandblasting.

## **B. The Independent Claims on Appeal**

The following explanation of the claimed subject matter, with reference to the specification and drawings, is for explanation only. The invention is not in any way limited to the disclosed embodiments. In addition, the claims, including the dependent claims, each stand on their own merit.

### **1. Claim 1**

Independent claim 1 recites an annular shim member having first and second opposing surfaces and a plurality of openings formed therethrough (*see, annular shim 600 shown in FIGS. 3A and 3B and lines 6-11 at page 8 of the specification*), wherein the member is made from a metallic material (*see, lines 9-16 at page 8 of the specification*) and at least partly defines a plurality of radially extending gas flow paths for communicating a radially interior side of the member with a radially exterior side of the member (*see, lines 20-24 at page 8 of the specification and lines 1-6 at page 9 of the specification*), the annular shim member being substantially planar (*see, FIGS. 3A and 3B and lines 6-19 at page 8 of the specification*).

### **2. Claim 23**

Independent claim 23 recites an annular shim member having first and second opposing surfaces and a plurality of openings formed therethrough (*see, annular shim 600 shown in FIGS. 3A and 3B and lines 6-11 at page 8 of the specification*), wherein the member is made from a metallic material (*see, lines 9-16 at page 8 of the specification*) and at least partly defines a plurality of radially extending gas flow paths (*see, lines 20-24 at page 8 of the specification and lines 1-6 at page 9 of the specification*), the annular shim member being substantially planar (*see, FIGS. 3A and 3B and lines 6-19 at page 8 of the specification*).

## **VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL – 37 C.F.R. § 41.37(c)(1)(vi)**

In the July 1, 2009 final Office Action (hereinafter “the Office Action”), claims 6, 7, 9, 10, 28, 29, 31 and 32 were rejected under 35 U.S.C. §112, second paragraph, as being allegedly indefinite for failing to particularly point out and claim the subject matter which applicant regards as the invention. Further, claims 1-10 and 23-32 were rejected under 35

U.S.C. §102(b) based on U.S. Pat. No. 3,958,840 to Hickox *et al.* (hereinafter “Hickox”). Claims 4, 5, 7, 26, 27 and 29 were rejected under 35 U.S.C. §103(a) based on Hickox as applied to claims 1-10 and 23-32 above, and further in view of U.S. Patent No. 4,304,178 to Häberle, claims 1-10 and 23-32 under §35 U.S.C. 103(a) based on Hickox in view of U.S. Pat. No. 3,429,622 to Lee *et al.* (hereinafter “Lee”) and claims 4, 5, 7, 26, 27 and 29 were rejected under 35 U.S.C. §103(a) based on Hickox in view of Lee as applied to claims 1-10 and 23-32 above, and further in view of Häberle. Thus, the grounds of rejection to be reviewed on appeal are:

- 1) whether claims 6, 7, 9, 10, 28, 29, 31 and 32 are indefinite under 35 U.S.C. §112, second paragraph;
- 2) whether claims 1-10 and 23-32 are anticipated by Hickox under 35 U.S.C. §102(b);
- 3) whether claims 4, 5, 7, 26, 27 and 29 are obvious under 35 U.S.C. §103(a) over the combination of Hickox and Häberle;
- 4) whether claims 1-10 and 23-32 are obvious under 35 U.S.C. §103(a) over the combination of Hickox and Lee; and
- 5) whether claims 4, 5, 7, 26, 27 and 29 are obvious under 35 U.S.C. §103(a) over the combination of Hickox, Lee and Häberle.

## **VII. ARGUMENT - 37 C.F.R. §41.37(c)(1)(vii)**

### **A. The law regarding 35 U.S.C. §112, second paragraph.**

The fact that claim language, including terms of degree, may not be precise, does not automatically render the claim indefinite under **35 U.S.C. 112**, second paragraph. *Seattle Box Co., v. Industrial Crating & Packing, Inc.*, 731 F.2d 818, 221 USPQ 568 (Fed. Cir. 1984). Acceptability of the claim language depends on whether one of ordinary skill in the art would understand what is claimed, in light of the specification.

Furthermore, in *Verve, L.L.C. v. Crane Cams, Inc.*, 311 F.3d 1116, 1120, 65 USPQ 2d (Fed. Cir. 2002), it was held that “Such usage may well satisfy the charge to ‘particularly point out and distinctly claim’ the invention,...and indeed may be necessary in order to provide the inventor with the benefit of his invention. [U]sages such as ‘substantially equal’ and ‘closely approximate’ may serve to describe the invention with precision appropriate to the technology and without intruding on the prior art. ...’ [L]ike the term ‘about,’ the term



‘substantially’ is a descriptive term commonly used in the patent claims to avoid a strict numerical boundary to the specified parameter.”

“[A]s a general proposition, broadening modifiers are standard tools in claim drafting in order to avoid reliance on the doctrine of equivalents in infringement actions...” See *In re Wiggins*, 488 F. 2d 538, 541, 179 USPQ 421, 423 (CCPA 1973).

In determining the range encompassed by the term "about", one must consider the context of the term as it is used in the specification and claims of the application. *Ortho-McNeil Pharm., Inc. v. Caraco Pharm. Labs., Ltd.*, 476 F.3d 1321, 1326, 81 USPQ2d 1427, 1432 (Fed. Cir. 2007). In *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), the court held that a limitation defining the stretch rate of a plastic as "exceeding about 10% per second" is definite because infringement could clearly be assessed through the use of a stopwatch ((see, MPEP 2173.05(b)).

**B. Rejection under 35 U.S.C. §112, second paragraph.**

Claims 6, 7, 9, 10, 28, 29, 31 and 32 were rejected as being indefinite under 35 U.S.C. §112, second paragraph. With respect to claims 6 and 28, the Office contends that the phrase “about 20% to about 80%” renders the claims indefinite because there is nothing in the specification, prosecution history, or the prior art to provide indication as to what range is covered by the term “about.”

With respect to claims 9 and 31, the Office contends that the phrase “an effective thickness of about twice the diameter of the wire constituting the wire mesh” renders the claims indefinite because there is nothing in the specification, prosecution history, or the prior art to provide any indication as to what range is covered by the term “about.”

With respect to claims 10 and 32, the Office contends that the phrase “up to about 1400 °C” renders the claims indefinite because there is nothing in the specification, prosecution history, or the prior art to provide any indication as to what range is covered by the term “about.” Appellant respectfully disagrees.

In rejecting claims 6, 7, 9, 10, 28, 29, 31 and 32, the Office appears to be relying on *Amgen, Inc. v. Chugai Pharmaceutical Co.*, 18 USPQ2d 1016 (Fed. Cir. 1991), which held that the term “at least about” was indefinite where there was “close prior art.” In that case, however, the only point of novelty between the patent claims and a prior art reference was a limitation that the specific activity of the claimed compound was “at least about 160,000.”

Furthermore, the district court found that “bioassays provide an imprecise form of

measurement with a range of error” and that use of the term “about” 160,000, coupled with the range of error already inherent in the specific activity limitation, served neither to distinguish the invention over the close prior art (which described substances with a specific activity of 120,000), nor to permit one to know what specific activity values below 160,000, if any, might constitute infringement. Therefore, under those facts the district court held, and the CAFC affirmed, that the claims at issue did not reasonably apprise those skilled in the art as to their scope.

In the present case, as discussed in greater detail below in addressing the 35 U.S.C. §102(b) and 35 U.S.C. §103(a) rejections, the prior art is not even remotely “close” with respect to the limitations in question. Moreover, unlike in *Amgen*, the limitations at issue here are not the sole point(s) of novelty relative to the prior art. Thus, even if the prior art was “close” with respect to these particular limitations, the claims as a whole are patentably distinct for a variety of reasons discussed below.

Moreover, the nature of the limitations at issue here lend themselves to a clear and ready assessment of infringement. See, for example, *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 220 USPQ 301 (Fed. Cir. 1983), in which the court held that a limitation defining the stretch rate of a plastic as “exceeding about 10% per second” is definite because infringement could clearly be addressed through the use of a stopwatch. The values claimed in claims 6, 7, 9, 10, 28, 29, 31 and 32 are easily measurable as in *Gore v. Garlock* and thus infringement can be assessed.

The limitations at issue here, which relate to well-known and well understood parameters such as the open area of a mesh, effective thickness, ratio of mesh thickness to wire diameter, and temperature, can all also be likewise readily assessed.

It should be noted the *Amgen* decision expressly disclaims any global rejection of “about” as indefinite, and states that the term can indeed be acceptable in appropriate fact situations. Furthermore, the case law holds that absolute mathematical precision is not a requirement for definiteness under 35 U.S.C. § 112, second paragraph.

Therefore, the recitation of the term “about” in claims 6, 7, 9, 10, 28, 29, 31 and 32 is definite. Accordingly, it is submitted that the indefiniteness rejections of claims 6, 7, 9, 10, 28, 29, 31 and 32 were improper and should be withdrawn.

**C. The Law Regarding Factual Inquiries to Determine Anticipation Under 35 U.S.C. § 102(b).**

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). “The identical invention must be shown in as complete detail as is contained in the ... claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). In *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369, 88 USPQ2d 1751, 1758-60 (Fed. Cir. 2008), it is further stated “We thus hold that unless a reference discloses within the four corners of the document not only all of the limitations claimed but also all of the limitations arranged or combined in the same way as recited in the claim, it cannot be said to prove prior invention of the thing claimed and, thus, cannot anticipate under...§102.”

**D. Rejection Under 35 U.S.C. § 102(b) of Claims 1-10 and 23-32 based on U.S. Pat. No. 3,958,840 to Hickox**

**1. The Cited Reference**

**a) Hickox**

Hickox discloses a flexible bearing (flexible bearing 5 shown in FIGS. 1 and 2 in Hickox) constructed of layers of elastomer and rigid shims (shims 6 shown in FIGS. 1 and 2 in Hickox), alternately stacked and bonded together. At least some of the rigid shims are replaced with flexible reinforcements of refractory cloth or wire screen (wire screen 9 shown in FIG. 3 in Hickox). The reinforcing material minimizes the number of rigid shims required (see, Abstract in Hickox and col. 2, lines 20-37 in Hickox). The wire screen 9 may be welded or soldered at intersections of the strands. The wire screen 9 provides sufficient strength to maintain dimensional stability of the elastomer under heavy loads that may be imposed upon it by propulsive gases in combination with stresses impressed by hydraulic actuators (see, col. 2, lines 29-37 in Hickox).

**2. Claims 1-10 and 23-32 are not anticipated by Hickox**

**a) Claim 1**

Independent claim 1 is directed to an annular shim member having first and second opposing surfaces and a plurality of openings formed therethrough, wherein the member is

made from a metallic material and at least partly defines a plurality of radially extending gas flow paths for communicating a radially interior side of the member with a radially exterior side of the member. Claim 1 further specifies that the annular shim member is substantially planar.

The Office contends that Hickox discloses a shim that “inherently” at least partially defines a plurality of radially extending gas flow paths from communicating a radially interior side of the shim member with a radially exterior side of the shim member. Appellant respectfully disagrees.

Although the Office Action does not clearly describe how the Hickox reference allegedly anticipates each and every element of the present claim 1, Appellant’s understanding is that the Examiner is relying on the isolated teaching of the reinforcement layer 8 or wire screen 9 embedded in elastomer layers 7 as corresponding to the presently recited annular shim. It further appears that the openings in the mesh screen itself are asserted as corresponding to the presently recited radially extending gas flow paths. First of all, “In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original).

Furthermore, “To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.’” *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted).

In the present case, Hickox clearly does not disclose, teach or even suggest radially extending gas flow paths as claimed. Claim 1 requires that the shim member at least partly defines a plurality of radially extending gas flow paths for communicating a radially interior side of the member with a radially exterior side of the member. As can be seen in FIG. 3 of Hickox, all of the segments of the mesh 9 are welded at intersections 4, and offer no pathways for gas flow above or below the wires of the mesh.

In response to arguments filed April 29, 2009, the Office contends that Hickox discloses an annular shim member having first and second opposing surfaces and a plurality of openings (gas flow paths) formed therethrough. Appellant respectfully disagrees. The

Office appears to have ignored the entirety of the claim language. Indeed, claim 1 recites radially extending gas flow paths. Hickox does not disclose, teach or suggest “radially extending gas flow paths.”

In addition, as described in col. 3, lines 26-40, Hickox teaches that a “valuable and unexpected result” of the method of manufacturing the flexible bearings is that “the layers 7 of elastomer extrude through the openings in the screen or cloth reinforcing layers and weld together.” Thus, there are clearly no gas flow paths in the Hickox bearing, since the adjacent elastomer layers extrude into any openings and weld together, and Hickox therefore further teaches away from the present invention.

Furthermore, Hickox does not disclose a “substantially planar” shim, as presently claimed. Hickox discloses a frusto-conical annular wire screen, and nothing in the prior art teaches or suggests modifying Hickox as would be required to arrive at the present invention.

The Office contends that Hickox discloses that the layers are molded into shape by heat and pressure and contends that the shim shown in FIG. 3 is in planar form prior to shape molding. Appellant respectfully disagrees.

First of all, Appellant submits that a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. In the present case, Hickox does not disclose, teach or even suggest “a substantially planar shim.” The Office assumes that the wire screen 9 is necessarily planar prior to reshaping into a conical form. However, there is absolutely no suggestion in Hickox that the wire screen 9 is planar prior to reshaping. Indeed, the wire screen 9 could have had any other shape including a cylindrical shape or curved shape prior to reshaping into a conical shape.

Furthermore, Hickox teaches a particular type of bearing, intended for use as a flexible joint between a rocket case and a movable thrust nozzle, and in which the layers conform to surfaces of concentric spheres (see, e.g., col. 1, lines 37-51; col. 2, lines 50-58). Therefore, Hickox actually teaches away from the claimed “substantially planar” annular shim.

Moreover, the wire screen 9 in Hickox is formed in a grid-like configuration wherein the wires are welded together at their intersection (see, FIG. 3 and col. 2, lines 41-44 in Hickox), unlike the undulating wires of the annular shim claimed in claim 1

Therefore, for at least the above reasons, Appellant respectfully submits that claim 1 is patentable over Hickox. Thus, it is respectfully requested that the rejection of claim 1 under 35 U.S.C. §102(b) over Hickox be withdrawn.

**b) Claim 23**

Independent claim 23 is directed to an annular shim member having first and second opposing surfaces and a plurality of openings formed therethrough, wherein the member is made from a metallic material and at least partly defines a plurality of radially extending gas flow paths, the annular shim member being substantially planar.

Claim 23 is patentable over Hickox for at least similar reasons provided above with respect to claim 1.

Hickox clearly does not disclose, teach or even suggest radially extending gas flow paths as claimed. Claim 23 requires that the shim member at least partly defines a plurality of radially extending gas flow paths. As can be clearly seen in FIG. 3 of Hickox, all of the segments of the mesh 9 are welded at intersections 4, and offer no pathways for gas flow above or below the wires of the mesh.

In response to arguments filed April 29, 2009, the Office contends that Hickox discloses an annular shim member having first and second opposing surfaces and a plurality of openings (gas flow paths) formed therethrough. Appellant respectfully disagrees. The Office appears to have ignored the entirety of the claim language. Indeed, claim 1 recites radially extending gas flow paths. Hickox does not disclose, teach or suggest “radially extending gas flow paths.”

In addition, as described in col. 3, lines 26-40, Hickox teaches that a “valuable and unexpected result” of the method of manufacturing the flexible bearings is that “the layers 7 of elastomer extrude through the openings in the screen or cloth reinforcing layers and weld together.” Thus, there are clearly no gas flow paths in the Hickox bearing, since the adjacent elastomer layers extrude into any openings and weld together, and Hickox therefore further teaches away from the present invention.

Furthermore, Hickox does not disclose a “substantially planar” shim, as presently claimed. Hickox discloses a frusto-conical annular wire screen, and nothing in the prior art teaches or suggests modifying Hickox as would be required to arrive at the present invention. The Office contends that Hickox discloses that the layers are molded into shape by heat and pressure and contends that the shim shown in FIG. 3 is in planar form prior to shape molding. Appellant respectfully disagrees.

The Office assumes that the wire screen 9 is necessarily planar prior to reshaping into a conical form. However, there is absolutely no suggestion in Hickox that the wire screen 9 is planar prior to reshaping. Indeed, the wire screen 9 could have had any other shape including a cylindrical shape or curved shape prior to reshaping into a conical shape. Furthermore, Hickox teaches a particular type of bearing, intended for use as a flexible joint between a rocket case and a movable thrust nozzle, and in which the layers conform to surfaces of concentric spheres (see, e.g., col. 1, lines 37-51; col. 2, lines 50-58). Therefore, Hickox actually teaches away from the claimed “substantially planar” annular shim. Therefore, for at least the above reasons, Appellant respectfully submits that claim 23 is patentable over Hickox. Thus, it is respectfully requested that the rejection of claim 23 under 35 U.S.C. §102(b) over Hickox be withdrawn.

**c) Claims 2-4 and 24-26**

Claims 2-4 and 24-26 depend, respectively, from claims 1 and 23. Therefore, claims 2-4 and 24-26 are patentable over Hickox at least by virtue of their dependence on claims 1 and 23 and for the additional subject matter recited therein.

Thus, it is respectfully requested that the rejection of claims 2-4 and 24-26 under 35 U.S.C. §102(b) over Hickox be withdrawn.

**d) Claims 5 and 27**

Claims 5 and 27 depend, respectively, from claims 1 and 23. Therefore, claims 5 and 27 are patentable over Hickox at least by virtue of their dependence on claims 1 and 23 and for the additional subject matter recited therein.

Indeed, Hickox does not disclose, teach or suggest “the metallic member comprises one or more of stainless steel, a nickel-chromium-based alloy, titanium, molybdenum, tantalum, and tungsten,” as further required in claims 5 and 27.

Therefore, for these additional reasons, Appellant respectfully submits that claims 5 and 27 are further patentable over Hickox. Thus, it is respectfully requested that the rejection of claims 5 and 27 under 35 U.S.C. §102(b) over Hickox be withdrawn.

**e) Claims 6 and 28**

Claims 6 and 28 depend, respectively, from claims 1 and 23. Therefore, claims 6 and 28 are patentable over Hickox at least by virtue of their dependence on claims 1 and 23 and for the additional subject matter recited therein.

Indeed, Hickox does not disclose, teach or suggest “the wire mesh has an open mesh area of about 20% to about 80%,” as further required in claims 6 and 28. Contrary to Office’s contention, FIG. 3 in Hickox does not disclose, teach or suggest the range open mesh area between about 20% and about 80%.

Therefore, for these additional reasons, Appellant respectfully submits that claims 6 and 28 are further patentable over Hickox. Thus, it is respectfully requested that the rejection of claims 6 and 28 under 35 U.S.C. §102(b) over Hickox be withdrawn.

**f) Claims 7 and 29**

Claims 7 and 29 depend, respectively, from claims 1 and 23. Therefore, claims 7 and 29 are patentable over Hickox at least by virtue of their dependence on claims 1 and 23 and for the additional subject matter recited therein.

Indeed, Hickox does not disclose, teach or suggest “the member has an effective thickness of about 1 mm to about 6 mm,” as further required in claims 7 and 29. As conceded in the Final Office Action, Hickox does not mention a specific thickness range. The Office, however, contends that it would have been obvious to one of ordinary skill in the art to vary the thickness. Appellant respectfully submits that claims 7 and 29 were rejected as being anticipated by Hickox under 35 U.S.C. §102(b) not as being obvious over Hickox. However, the Office is applying an obviousness-type rejection. The fact that the Office admits that Hickox does not disclose the claimed thickness is by itself an admission that the above rejection of claims 7 and 29 under 35 U.S.C. §102(b) is improper.

Therefore, for these additional reasons, Appellant respectfully submits that claims 7 and 29 are further patentable over Hickox. Thus, it is respectfully requested that the rejection of claims 7 and 29 under 35 U.S.C. §102(b) over Hickox be withdrawn.

**g) Claims 8 and 30**

Claims 8 and 30 depend, respectively, from claims 1 and 23. Therefore, claims 8 and 30 are patentable over Hickox at least by virtue of their dependence on claims 1 and 23 and for the additional subject matter recited therein.



Indeed, Hickox does not disclose, teach or suggest “the wire mesh includes a crimped weave mesh,” as further required in claims 8 and 30.

To the extent that Hickox is allegedly “only slightly different” than the claimed invention with regard to a crimped weave mesh, it is still the Patent Office's burden to establish prima facie obviousness, which was not done in this case. Moreover, the Examiner's reference to product-by-process claims is inappropriate here and irrelevant. A “crimped” wire is a structural recitation, and not a process limitation.

In response to the arguments filed on April 29, 2009, the Office admits that Hickox does not teach pre-shaping the wires of the wire mesh. However, the Office states that absent a showing to the contrary the article of the applied prior art is identical to or only slightly different than the claimed article. Applicant respectfully maintains it is the Patent Office's burden to establish that the claimed subject matter is anticipated by or obvious over the relied upon reference.

In addition, Applicant respectfully submits that the fact that the Office admits that Hickox does not teach pre-shaping the wires of the wire mesh is a clear indication that claims 8 and 30 are not anticipated under §102. In *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369, 88 USPQ2d 1751, 1758-60 (Fed. Cir. 2008), it is stated “We thus hold that unless a reference discloses within the four corners of the document not only all of the limitations claimed but also all of the limitations arranged or combined in the same way as recited in the claim, it cannot be said to prove prior invention of the thing claimed and, thus, cannot anticipate under...§102.” (Emphasis added).

Therefore, for these additional reasons, Appellant respectfully submits that claims 8 and 30 are further patentable over Hickox. Thus, it is respectfully requested that the rejection of claims 8 and 30 under 35 U.S.C. §102(b) over Hickox be withdrawn.

#### **h) Claims 9 and 31**

Claims 9 and 31 depend, respectively, from claims 1 and 23. Therefore, claims 9 and 31 are patentable over Hickox at least by virtue of their dependence on claims 1 and 23 and for the additional subject matter recited therein.

Indeed, Hickox does not disclose, teach or suggest “wherein the member has an effective thickness of about twice the diameter of the wire constituting the wire mesh,” as further required in claims 9 and 31.

First of all, contrary to Office's interpretation, claims 9 and 31 do not specifically recite "comprises a weave of interlocking strands." In addition, the Office assertion that the prior art "appears to inherently" injects a degree of doubt in the teachings of the prior art that by definition prevents a conclusion of inherent disclosure.

Furthermore, "In relying upon the theory of inherency, the Office must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). In addition, "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted). Clearly, the Office failed to establish that the missing feature in Hickox is "inherent."

Therefore, for these additional reasons, Appellant respectfully submits that claims 9 and 31 are further patentable over Hickox. Thus, it is respectfully requested that the rejection of claims 9 and 31 under 35 U.S.C. §102(b) over Hickox be withdrawn.

#### **i) Claims 10 and 32**

Claims 10 and 32 depend, respectively, from claims 1 and 23. Therefore, claims 10 and 32 are patentable over Hickox at least by virtue of their dependence on claims 1 and 23 and for the additional subject matter recited therein.

Indeed, Hickox does not disclose, teach or suggest "the refractory material can withstand temperatures of up to about 1400 °C," as further required in claims 10 and 32.

The Office contends that the structure and material appear to be inherently capable of withstanding temperatures of up to about 1400 °C. Appellant respectfully disagrees.

"In relying upon the theory of inherency, the Office must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). In addition, "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so

recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted). Clearly, the Office failed to establish that the missing element in Hickox is inherent.

Therefore, for these additional reasons, Appellant respectfully submits that claims 10 and 32 are further patentable over Hickox. Thus, it is respectfully requested that the rejection of claims 10 and 32 under 35 U.S.C. §102(b) over Hickox be withdrawn.

**E. The Law Regarding Factual Inquiries to Determine Obviousness/Nonobviousness Under 35 U.S.C. § 103(a)**

Several basic factual inquiries must be made to determine obviousness or non-obviousness of patent application claims under 35 U.S.C. § 103. These factual inquiries are set forth in *Graham v. John Deere Co.*, 383 US 1, 17, 148 USPQ 459, 467 (1966):

Under §103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or non-obviousness of the subject matter is determined. Application of this test, however, involves a factual inquiry. As stated by the Federal Court in *In re Ochiai*, 71 F.3d 1565, 37 USPQ2d 1127, 1131 (Fed. Cir. 1995):

[T]he test of obviousness vel non is statutory. It requires that one compare the claim's subject matter as a whole with the prior art to which the subject matter pertains. 35 U.S.C. § 103.

The inquiry is thus highly fact-specific by design.... When the references cited by the Examiner fail to establish a *prima facie* case of obviousness, the rejection is improper and will be overturned. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988) (emphasis added).

In rejecting claims under 35 U.S.C. § 103(a), an Examiner bears an initial burden of presenting a *prima facie* case of obviousness. A *prima facie* case of obviousness is established only if there is a suggestion or motivation to combine reference teachings; a reasonable expectation of success; and the prior art references, when combined, teach or suggest all the claim limitations. If an Examiner fails to establish a *prima facie* case, a rejection is improper and will be overturned. See *In re Rijckaert*, 9 F.3d 1531, 28 USPQ2d

1955 (Fed. Cir. 1993). “If examination ... does not produce a prima facie case of unpatentability, then without more, the Applicant is entitled to the grant of the patent.” In re Oetiker, 977 F.2d 1443, 1445-46, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

Furthermore, as stated in the United States Supreme Court decision in *KSR Int'l. Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 82 USPQ2d 1385 (2007), “Often, it will be necessary for a court to look to interrelated teachings of multiple patents...in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be explicit.” *Id.* at slip opinion 14, 82 USPQ2d at 1396, citing *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”).

**F. Rejection Under 35 U.S.C. § 103(a) of Claims 4, 5, 7, 26, 27 and 29 based on Hickox as applied to claims 1-10 and 23-32 above, and further in view of U.S. Patent No. 4,304,178 to Häberle**

**1. The Cited References**

**a) Hickox**

(discussed in the above paragraphs)

**b) Häberle**

Häberle discloses a temperature controlled press plates that are spaced apart from the pressure plates of a press by spacers which limit the heat flow from the temperature controlled plate to the pressure plate and vice versa. The spacers comprise cup-shaped members for a pin received in a bore of one of the plates, the recess of the cup accommodating an insulating layer which is compression resistant and carries a friction reducing layer against which the surface of the other plate bears (see, Abstract in Häberle).

**2. Claims 4, 5, 7, 26, 27 and 29 are not obvious in view of the combination of Hickox and Häberle**

**a) Claims 4 and 26**

The Office acknowledges that Hickox does not disclose stainless steel. Häberle was relied upon as allegedly disclosing stainless steel. Häberle fails to cure the deficiencies noted above in Hickox. Häberle does not disclose, teach or suggest the subject matter recited in claim 1.

The fact that the Office rejected claims 4 and 26 under §103(a) over the combination of Hickox and Häberle is an admission that the prior rejection of claims 4 and 26 under §102(b) is not proper as Hickox does not disclose all the elements or features recited in claims 4 and 26.

Consequently, neither Hickox nor Häberle, alone or in combination, disclose, teach or suggest the subject matter recited in claims 4 and 26. Therefore, Appellant respectfully submits that claims 4 and 26 are patentable over the combination of Hickox and Häberle. Thus, it is respectfully requested that the rejection of claims 4 and 26 under 35 U.S.C. §102(a) over the combination of Hickox and Häberle be withdrawn.

**b) Claims 5 and 27**

The Office acknowledges that Hickox does not disclose stainless steel. Häberle was relied upon as allegedly disclosing stainless steel. Häberle fails to cure the deficiencies noted above in Hickox. Häberle does not disclose, teach or suggest the subject matter recited in claims 1 and 23.

The fact that the Office rejected claims 5 and 27 under §103(a) over the combination of Hickox and Häberle is an admission that the prior rejection of claims 5 and 27 under §102(b) is not proper as Hickox does not disclose all the elements or features recited in claims 5 and 27.

Furthermore, contrary to the Office contention, there is no suggestion, motivation or reasons to employ “stainless steel” of Häberle in the manufacture of the wire mesh of Hickox as the wire mesh of Hickox is embedded within an elastomer. When the wire mesh of Hickox is disposed within or embedded in the elastomeric material of Hickox, the wire mesh is not in contact with gases and thus protected from the gaseous environment and as a result protected from potential chemical reactions with the gases. Therefore, there is no motivation in Hickox to employ stainless steel in the manufacture of the wire mesh.

Consequently, neither Hickox nor Häberle, alone or in combination, disclose, teach or suggest the subject matter recited in claims 5 and 27. Therefore, Appellant respectfully submits that claims 5 and 27 are patentable over the combination of Hickox and Häberle. Thus, it is respectfully requested that the rejection of claims 5 and 27 under 35 U.S.C. §103(a) over the combination of Hickox and Häberle be withdrawn.

**c) Claims 7 and 29**

The Office acknowledges that Hickox does not disclose stainless steel. Häberle was relied upon as allegedly disclosing member thickness. Häberle fails to cure the deficiencies noted above in Hickox. Häberle does not disclose, teach or suggest the subject matter recited in claim 1.

The fact that the Office rejected claims 7 and 29 under §103(a) over the combination of Hickox and Häberle is an admission that the prior rejection of claims 7 and 29 under §102(b) is not proper as Hickox does not disclose all the elements or features recited in claims 7 and 29.

Consequently, neither Hickox nor Häberle, alone or in combination, disclose, teach or suggest the subject matter recited in claims 7 and 29. Therefore, Appellant respectfully submits that claims 7 and 29 are patentable over the combination of Hickox and Häberle. Thus, it is respectfully requested that the rejection of claims 7 and 29 under 35 U.S.C. §103(a) over the combination of Hickox and Häberle be withdrawn.

**G. Rejection Under 35 U.S.C. § 103(a) of Claims 1-10 and 23-32 based on Hickox in view of U.S. Pat. No. 3,429,622 to Lee**

**1. The Cited Reference**

**a) Hickox**

(discussed in the above paragraphs)

**b) Lee**

Lee discloses a bearing formed of a plurality of rigid layers, a plurality of elastomeric layers disposed between the rigid layers and bonded thereto, and a plurality of rigid spacers embedded within the elastomeric layers; and a process employing rigid spacers to space rigid

layers of a bearing having elastomeric layers disposed between and bonded to rigid layers (see, Abstract in Lee).

**2. Claims 1-10 and 23-32 are not obvious in view of the combination of Hickox and Lee**

**a) Claims 1 and 23**

Claims 1 and 23 are patentable over Hickox for at least the reasons provided in the above paragraphs.

Lee fails to cure the deficiencies noted in Hickox. Lee does not disclose, teach or even suggest the subject matter recited in claims 1 and 23.

Consequently, neither Hickox nor Lee, alone or in combination, disclose, teach or suggest the subject matter recited in claims 1 and 23.

Therefore, for at least the above reasons, Appellant respectfully submits that claims 1 and 23 are patentable over the combination of Hickox and Lee. Thus, it is respectfully requested that the rejection of claims 1 and 23 under 35 U.S.C. §103(a) over the combination of Hickox and Lee be withdrawn.

**b) Claims 2-4 and 24-26**

Claims 2-4 and 24-26 depend, respectively, from claims 1 and 23. Therefore, claims 2-4 and 24-26 are patentable over the combination of Hickox and Lee at least by virtue of their dependence on claims 1 and 23 and for the additional subject matter recited therein.

Thus, it is respectfully requested that the rejection of claims 2-4 and 24-26 under 35 U.S.C. §103(a) over the combination of Hickox and Lee be withdrawn.

**c) Claims 5 and 27**

Claims 5 and 27 depend, respectively, from claims 1 and 23. Therefore, claims 5 and 27 are patentable over the combination of Hickox and Lee at least by virtue of their dependence on claims 1 and 23 and for the additional subject matter recited therein.

Indeed, neither Hickox nor Lee, alone or in combination, disclose, teach or suggest “the metallic member comprises one or more of stainless steel, a nickel-chromium-based alloy, titanium, molybdenum, tantalum, and tungsten,” as further required in claims 5 and 27.

Therefore, for these additional reasons, Appellant respectfully submits that claims 5 and 27 are further patentable over the combination of Hickox and Lee. Thus, it is respectfully requested that the rejection of claims 5 and 27 under 35 U.S.C. §103(a) over the combination of Hickox and Lee be withdrawn.

**d) Claims 6 and 28**

Claims 6 and 28 depend, respectively, from claims 1 and 23. Therefore, claims 6 and 28 are patentable over the combination of Hickox and Lee at least by virtue of their dependence on claims 1 and 23 and for the additional subject matter recited therein.

Indeed, neither Hickox nor Lee, alone or in combination, disclose, teach or suggest “the wire mesh has an open mesh area of about 20% to about 80%,” as further required in claims 6 and 28. Contrary to Office’s contention, FIG. 3 in Hickox does not disclose, teach or suggest the range open mesh area between about 20% and about 80%.

Therefore, for these additional reasons, Appellant respectfully submits that claims 6 and 28 are further patentable over the combination of Hickox and Lee. Thus, it is respectfully requested that the rejection of claims 6 and 28 under 35 U.S.C. §103(a) over the combination of Hickox and Lee be withdrawn.

**e) Claims 7 and 29**

Claims 7 and 29 depend, respectively, from claims 1 and 23. Therefore, claims 7 and 29 are patentable over the combination of Hickox and Lee at least by virtue of their dependence on claims 1 and 23 and for the additional subject matter recited therein. Indeed, neither Hickox nor Lee, alone or in combination, disclose, teach or suggest “the member has an effective thickness of about 1 mm to about 6 mm,” as further required in claims 7 and 29. As conceded in the Final Office Action, Hickox does not mention a specific thickness range. The Office, however, contends that it would have been obvious to one of ordinary skill in the art to vary the thickness to obtain the optimum value. Appellant respectfully disagrees.

A particular parameter must be first recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of the variable might be characterized as routine experimentation. *In re Antonie*, 558 F.2d 618, 195 USPQ 6 (CCPA 1977). In the present case, it must be first



recognized that the dimension/thickness of the wire is a result effective parameter before selecting a proper dimension/thickness.

Therefore, for these additional reasons, Appellant respectfully submits that claims 7 and 29 are further patentable over the combination of Hickox and Lee. Thus, it is respectfully requested that the rejection of claims 7 and 29 under 35 U.S.C. §103(a) over the combination of Hickox and Lee be withdrawn.

**f) Claims 8 and 30**

Claims 8 and 30 depend, respectively, from claims 1 and 23. Therefore, claims 8 and 30 are patentable over the combination of Hickox and Lee at least by virtue of their dependence on claims 1 and 23 and for the additional subject matter recited therein. Indeed, neither Hickox nor Lee, alone or in combination, disclose, teach or suggest “the wire mesh includes a crimped weave mesh,” as further required in claims 8 and 30.

To the extent that Hickox is allegedly “only slightly different” than the claimed invention with regard to a crimped weave mesh, it is still the Patent Office's burden to establish prima facie obviousness, which was not done in this case. Moreover, the Examiner's reference to product-by-process claims is inappropriate here and irrelevant. A “crimped” wire is a structural recitation, and not a process limitation.

In response to the arguments filed on April 29, 2009, the Office admits that Hickox does not teach pre-shaping the wires of the wire mesh. However, the Office states that absent a showing to the contrary, the article of the applied prior art is identical to or only slightly different than the claimed article. Applicant respectfully maintains it is the Patent Office's burden to establish that the claimed subject matter is anticipated by or obvious over the relied upon reference.

Therefore, for these additional reasons, Appellant respectfully submits that claims 8 and 30 are further patentable over the combination of Hickox and Lee. Thus, it is respectfully requested that the rejection of claims 8 and 30 under 35 U.S.C. §103(a) over the combination of Hickox and Lee be withdrawn.

**g) Claims 9 and 31**

Claims 9 and 31 depend, respectively, from claims 1 and 23. Therefore, claims 9 and 31 are patentable over the combination of Hickox and Lee at least by virtue of their dependence on claims 1 and 23 and for the additional subject matter recited therein.

Indeed, neither Hickox nor Lee, alone or in combination, disclose, teach or suggest “wherein the member has an effective thickness of about twice the diameter of the wire constituting the wire mesh,” as further required in claims 9 and 31.

First of all, contrary to the Office interpretation, claims 9 and 31 do not specifically recite “comprises a weave of interlocking strands.” In addition, the Office assertion that the prior art “appears to inherently” injects a degree of doubt in the teachings of the prior art that by definition prevents a conclusion of inherent disclosure.

Furthermore, “In relying upon the theory of inherency, the Office must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). In addition, “To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.’ ” *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted). Clearly, the Office failed to establish that the missing feature in the combination of Hickox and Lee is “inherent.” Therefore, for these additional reasons, Appellant respectfully submits that claims 9 and 31 are further patentable over the combination of Hickox and Lee. Thus, it is respectfully requested that the rejection of claims 9 and 31 under 35 U.S.C. §103(a) over the combination of Hickox and Lee be withdrawn.

#### **h) Claims 10 and 32**

Claims 10 and 32 depend, respectively, from claims 1 and 23. Therefore, claims 10 and 32 are patentable over the combination of Hickox and Lee at least by virtue of their dependence on claims 1 and 23 and for the additional subject matter recited therein. Indeed, neither Hickox nor Lee, alone or in combination, disclose, teach or suggest “the refractory material can withstand temperatures of up to about 1400° C,” as further required in claims 10 and 32.

The Office contends that the structure and material appear to be inherently capable of withstanding temperatures of up to about 1400 °C. Appellant respectfully disagrees.

“In relying upon the theory of inherency, the Office must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). In addition, “To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.’ ” *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted). Clearly, the Office failed to establish that the missing element in the combination of Hickox and Lee is inherent.

Therefore, for these additional reasons, Appellant respectfully submits that claims 10 and 32 are further patentable over the combination of Hickox and Lee. Thus, it is respectfully requested that the rejection of claims 10 and 32 under 35 U.S.C. § 103(a) over the combination of Hickox and Lee be withdrawn.

**H. Rejection Under 35 U.S.C. § 103(a) of Claims 4, 5, 7, 26, 27 and 29 based on Hickox in view of Lee as applied to claims 1-10 and 23-32 above, and further in view of Häberle**

**1. The Cited References**

**a) Hickox**

(discussed in the above paragraphs)

**b) Lee**

(discussed in the above paragraphs)

**c) Häberle**

(discussed in the above paragraphs)

**2. Claims 4, 5, 7, 26, 27 and 29 are not obvious in view of the combination of Hickox, Lee and Häberle**

**a) Claims 4 and 26**

Claims 4 and 26 depend, respectively, from claims 1 and 23. Therefore, claims 4 and 26 are patentable over the combination of Hickox and Lee at least by virtue of their dependence on claims 1 and 23 and for the additional subject matter recited therein.

The Office acknowledges that the combination of Hickox and Lee does not disclose stainless steel. Häberle was relied upon as allegedly disclosing stainless steel. Häberle fails to cure the deficiencies noted above in the combination of Hickox and Lee. Häberle does not disclose, teach or suggest the subject matter recited in claim 1.

Consequently, none of Hickox, Lee or Häberle, alone or in combination, disclose, teach or suggest the subject matter recited in claims 4 and 26. Therefore, Appellant respectfully submits that claims 4 and 26 are patentable over the combination of Hickox, Lee and Häberle. Thus, it is respectfully requested that the rejection of claims 4 and 26 under 35 U.S.C. §103(a) over the combination of Hickox, Lee and Häberle be withdrawn.

**b) Claims 5 and 27**

Claims 5 and 27 depend, respectively, from claims 1 and 23. Therefore, claims 5 and 27 are patentable over the combination of Hickox and Lee at least by virtue of their dependence on claims 1 and 23 and for the additional subject matter recited therein. Indeed, neither Hickox nor Lee, alone or in combination, disclose, teach or suggest “the metallic member comprises one or more of stainless steel, a nickel-chromium-based alloy, titanium, molybdenum, tantalum, and tungsten,” as further required in claims 5 and 27. Therefore, for these additional reasons, Appellant respectfully submits that claims 5 and 27 are further patentable over the combination of Hickox and Lee.

The Office acknowledges that Hickox does not disclose stainless steel. Häberle was relied upon as allegedly disclosing stainless steel. Häberle fails to cure the deficiencies noted above in Hickox. Häberle does not disclose, teach or suggest the subject matter recited in claim 1.

Furthermore, contrary to the Office contention, there is no suggestion, motivation or reasons to employ “stainless steel” of Häberle in the manufacture of the wire mesh of Hickox as the wire mesh of Hickox is imbedded within an elastomer.

Consequently, none of Hickox, Lee or Häberle, alone or in combination, disclose, teach or suggest the subject matter recited in claims 5 and 27. Therefore, Appellant respectfully submits that claims 5 and 27 are patentable over the combination of Hickox and Häberle. Thus, it is respectfully requested that the rejection of claims 5 and 27 under 35 U.S.C. §103(a) over the combination of Hickox, Lee and Häberle be withdrawn.

**c) Claims 7 and 29**

Claims 7 and 29 depend, respectively, from claims 1 and 23. Therefore, claims 7 and 29 are patentable over the combination of Hickox and Lee at least by virtue of their dependence on claims 1 and 23 and for the additional subject matter recited therein. Indeed, neither Hickox nor Lee, alone or in combination, disclose, teach or suggest “the member has an effective thickness of about 1 mm to about 6 mm,” as further required in claims 7 and 29. As conceded in the Final Office Action, Hickox does not mention a specific thickness range. Häberle was relied upon as allegedly disclosing member thickness. Häberle fails to cure the deficiencies noted above in the combination of Hickox and Lee. Häberle does not disclose, teach or suggest the subject matter recited in claim 1.

Consequently, none of Hickox, Lee or Häberle, alone or in combination, disclose, teach or suggest the subject matter recited in claims 7 and 29. Therefore, Appellant respectfully submits that claims 7 and 29 are patentable over the combination of Hickox, Lee and Häberle. Thus, it is respectfully requested that the rejection of claims 7 and 29 under 35 U.S.C. §103(a) over the combination of Hickox, Lee and Häberle be withdrawn.

## CONCLUSION

For the above reasons, Appellant respectfully requests this Honorable Board to reverse the rejections of claims 1-10 and 23-32.

Date: July 6, 2010

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## **VIII. CLAIMS APPENDIX - 37 C.F.R. §41.37(c)(1)(viii)**

Claims 1-10 and 23-32 are as follows:

1. An annular shim member having first and second opposing surfaces and a plurality of openings formed therethrough,

wherein the member is made from a metallic material and at least partly defines a plurality of radially extending gas flow paths for communicating a radially interior side of the member with a radially exterior side of the member, the annular shim member being substantially planar.

2. The member according to claim 1, wherein the metallic material is a bare metallic material.

3. The member according to claim 1, wherein the metallic material is a wire mesh.

4. The member according to claim 3, wherein the metallic material is a refractory material.

5. The member according to claim 3, wherein the metallic member comprises one or more of stainless steel, a nickel-chromium-based alloy, titanium, molybdenum, tantalum, and tungsten.

6. The member according to claim 3, wherein the wire mesh has an open mesh area of about 20% to about 80%.

7. The member according to claim 3, wherein the member has an effective thickness of about 1 mm to about 6 mm.

8. The member according to claim 3, wherein the wire mesh includes a crimped weave mesh.

9. The member according to claim 3, wherein the member has an effective thickness of about twice the diameter of the wire constituting the wire mesh.

10. The member according to claim 4, wherein the refractory material can withstand temperatures of up to about 1400° C.

23. An annular shim member having first and second opposing surfaces and a plurality of openings formed therethrough,

wherein the member is made from a metallic material and at least partly defines a plurality of radially extending gas flow paths, the annular shim member being substantially planar.

24. The member according to claim 23, wherein the metallic material is a bare metallic material.

25. The member according to claim 23, wherein the metallic material is a wire mesh.

26. The member according to claim 25, wherein the metallic material is a refractory material.



27. The member according to claim 25, wherein the metallic member comprises one or more of stainless steel, a nickel-chromium-based alloy, titanium, molybdenum, tantalum, and tungsten.

28. The member according to claim 25, wherein the wire mesh has an open mesh area of about 20% to about 80%.

29. The member according to claim 25, wherein the member has an effective thickness of about 1 mm to about 6 mm.

30. The member according to claim 25, wherein the wire mesh includes a crimped weave mesh.

31. The member according to claim 25, wherein the member has an effective thickness of about twice the diameter of the wire constituting the wire mesh.

32. The member according to claim 26, wherein the refractory material can withstand temperatures of up to about 1400° C.

**IX. EVIDENCE APPENDIX – 37 C.F.R. § 41.37(c)(1)(ix)**

None.

**X. RELATED PROCEEDINGS APPENDIX – 37 C.F.R. § 41.37(c)(1)(x)**

None.